plurality of host processors that is logged into the storage system as being logged into the storage system.

37. (Amended) In a computer system having a plurality of host processors coupled to a storage system over a network, a method comprising a step of:

displaying, on a display in the computer system, a first representation of each of the plurality of host processors that is logged into the storage system over the network, wherein the first representation identifies each of the plurality of host processors that is logged into the storage system as being logged into the storage system.

REMARKS

In response to the Office Action mailed October 4, 2002, Applicants respectfully request reconsideration.

Claims 1-85 are pending in this application. Claims 1-36, 37-61, 62-67, 68-73, 74-79, and 80-85 stand rejected under 35 U.S.C. §103(a) as being unpatentable over U.S. Patent No. 5,860,137 to Raz et al. (Raz) in view of U.S. Patent No. 5,768,552 to Jacoby (Jacoby) and U.S. Patent No. 5,220,655 to Brown et al. (Brown). These rejections are respectfully traversed.

With respect to claims 1-36, the Office Action asserts that Raz discloses a storage system coupled to a plurality of host processors over a network. The Office Action concedes that Raz does not teach "graphical manipulation and display representation of each host processor[s] and [the] storage system." However, the Office Action asserts that Jacoby teaches a graphical method for monitoring and displaying connections to enable a user to visually monitor the network, and that one of ordinary skill in the art would have been motivated to apply the network management method of Jacoby to the storage system of Raz because it would have provided an intuitive and easy to comprehend way to monitor the storage system. Although the Office Action also concedes that neither Raz nor Jacoby discloses adapters on either the host processors or the storage device, the Office Action asserts that it would have been obvious to do so because Brown teaches a network management system which displays images of adapters and the status of ports on a network device and their connection. Claims 37-85 were "similarly rejected." All of these rejections are respectfully traversed.

The Combination of Raz and Jacoby is Improper

One of ordinary skill in the art would not have been motivated to modify the storage system of Raz with the graphical method of network monitoring and display of Jacoby because each of the host processors in Raz is connected to the storage system through a dedicated host connection rather than a network. Although the Office Action asserts that Raz discloses "a storage system coupled to a plurality of host processors over a network," it does not. Instead, Raz discloses that the host processors 12 are connected together by a high speed bus 18, and that each of the host processors 12 is separately connected to the storage system 14 through a respective dedicated host connection 16. (Col. 3, lines 36-44.)

In contrast, Jacoby is directed to graphically representing the topology and information transfer activity occurring on a computer network. (See Abstract and col. 1, lines 12-15.) As described in Jacoby, because the network topology and data transfer activity of a computer network can change over time, an administrator or user "must be able to obtain timely information related to the current topology and data transfer activity occurring on the network." (Col. 1, lines 37-41.)

One of ordinary skill in the art would not have been motivated to combine the teaching of Jacoby with those of Raz because the teachings of Jacoby are not applicable to the computer system of Raz. Specifically, each of the host processor connections to the storage system of Raz is a dedicated connection, such that the "topology" of the system does not change over time as taught by Jacoby. Similarly, there is no teaching in the art that the data transfer activity in Raz changes over time. Accordingly, one of ordinary skill in the art would not have been motivated to combine the teachings of Jacoby with those of Raz because the system of Raz does not have a network configuration of the type that Jacoby teaches should be monitored. Thus, the rejection of claims 1-85 over this combination of references is improper and should be withdrawn.

Claims 1-85 Patentably Distinguish Over the Combination of Raz in View of Jacoby and Brown

Even if the Combination of Raz, Jacoby, and Brown under 35 U.S.C. §103(a) were proper, each of claims 1-85 patentably distinguishes over the combined teachings of these references.

Preliminarily, Applicants note that each of claims 1 and 37 has been amended solely to further clarify Applicants' claimed invention, and not to distinguish over the cited art, as it is believed that these claims as previously presented distinguished over the prior art for the reasons described in detail below.

Claim 1 has been amended to further clarify that the first representation that is displayed represents each of the plurality of host processors that is logged into the storage system "over the network" in a manner similar to that of claim 37. Furthermore, each of claims 1 and 37 has been amended to clarify that the first representation that is displayed identifies each of the plurality of host processors that is logged into the storage system over the network, "wherein the first representation identifies each of the plurality of host processors that is logged into the storage system as being logged into the storage system." This second amendment distinguishes over a computer system that may be capable of displaying a representation of a plurality of host processors that are connected to a storage system over a network, but does not identify which of the plurality of host computers is logged into the storage system.

Attached hereto are marked-up versions of the changes made to the claims by the current amendment. The attached pages are captioned "**MARKED-UP CLAIMS.**"

1. The Disclosure of Raz

Raz is directed to load balancing in parallel database systems in which a database is distributed among several host processors. (Col. 1, lines 4-8). Each of the host processors 12 is connected to the storage system 14 through a respective host connection 16, and the host processors 12 are connected together by a high speed bus 18. (Col. 3, lines 36-44.) The database is stored in multiple logical volumes 20 of the storage system 14, and by an agreement enforced at the host processor level, each host processor owns a different subset of multiple volumes. (Col. 3, lines 45-62.) Each host processor can only access those logical volumes that it owns. (Col. 3, lines 62-65.)

One of the host processors, designated the managing host processor, manages execution of work that is performed by the database system by processing transaction requests, distributing responsibility for executing those transaction requests among the host processors dependent upon which host processor is responsible for which portions of the database, monitors the workload of each of the host processors, and assigns ownership of the logical volumes to each of the host processors. (Col. 4, lines 15-23.) The managing host processor generates a database table 36 that maps database records to logical volumes 20 and an ownership table 38 that assigns ownership of the logical volumes to the host processors. (Col. 4, lines 36-53.) If the managing host processor detects an imbalance in the distribution of the workload among the host processors (by comparing the monitored workload to a desired workload distribution), it executes a load rebalancing routine that identifies which local volumes can be transferred to other host processors and then transfers ownership of the identified logical volumes to the other host processors by updating the entries in the ownership table. (Col. 6, lines 46-61.)

2. The Disclosure of Jacoby

Jacoby is directed to graphically displaying the network topology and information interchange activity occurring on a computer network. (Col. 1, lines 13-16.) Specifically, by scanning information packets passing across the network, and decoding the information packets to extract the source and destination address information, a database containing information relating to the topology of the network and information transfer activity occurring on the network is provided. (Col. 6, lines 29-47). Using that network database, a network monitor generates a graphical representation of the network topology and information transfer activity. (Col. 6, lines 47-50.)

3. The Disclosure of Brown

Brown is directed to monitoring the status of a local area network by producing a topology map of the network configuration and by producing a control console display image depicting the appearance of selected network hubs. (Col. 1, lines 7-12.) Although Brown discloses a network management control console that is capable of displaying a detailed image that depicts the actual appearance of a selected network concentrator (i.e., network hub), the user

interface provided by the network management control console simply shows the physical appearance of the network concentrator. The user interface is incapable of modifying that appearance.

4. Claims 1-61 Patentably Distinguish Over the Combination of Raz in View of Jacoby and Brown

Claim 1 is directed to a computer readable medium encoded with a program for execution on a computer system that includes a plurality of host processors coupled to a storage system over a network. The program, when executed on the computer system, performs a method comprising a step of displaying a first representation of each of the plurality of host processors that is logged into the storage system over the network, wherein the first representation identifies each of the plurality of host processors that is logged into the storage system as being logged into the storage system.

Claim 1 patentably distinguishes over the asserted combination of Raz, Jacoby, and Brown, as none of the references, alone or in combination discloses, teaches or suggests displaying a first representation of each of a plurality of host processors that is logged into the storage system over the network, wherein the first representation identifies each of the plurality of host processors that is logged into the storage system as being logged into the storage system.

As detailed above, each of the host processors 12 of Raz is connected to the storage system 14 through a dedicated host connection 16, and the host processors 12 are connected together by a high speed bus 18. (Col. 3, lines 36-44.) Because the host processors of Raz are not coupled to the storage system over a network, Raz cannot disclose whether or not they are logged into the storage system over a network. Rather, Raz is concerned with a trusted environment in which the host processors are trusted to abide by an agreement under which a host processor is "prohibited from sending I/O requests to any of the volumes which are outside the volumes which it owns." (Col. 1, lines 46-65). This is in contrast to embodiments of Applicants' invention in which a plurality of host processors may be coupled to a storage system over a network (rather than a dedicated link) that can include un-trusted devices, so that each must log in to the storage system (e.g., be authenticated) before being granted access to storage volumes that may be allocated to it.

With respect to Jacoby, the graphical representation provided by Jacoby is based upon scanning information packets passing across a network, and decoding the information packets to extract the source and destination address information. Although Jacoby can identify the source and destination of an information packet, such information does not indicate whether or not one device is logged into another. Indeed, that information only identifies that the information packet was sent, but does not indicate whether the information packet was even received at the destination address.

With respect to Brown, although the network management control console is capable of displaying a detailed image depicting the actual appearance of a selected network concentrator, that detailed image simply shows one end of the physical connection (i.e., that of the network concentrator) and does not identify the device to which that port is connected, let alone whether the port is logged into another device through that connection.

Accordingly, as neither Raz, Jacoby, nor Brown, nor their combination discloses, teaches or suggests a step of displaying a first representation of each of a plurality of host processors that is logged into the storage system over the network, wherein the first representation identifies each of the plurality of host processors that is logged into the storage system as being logged into the storage system as recited in claim 1, claim 1 patentably distinguishes over the combination.

Claims 2-36 depend either directly or indirectly from claim 1 and patentably distinguish over the asserted combination of Raz in view of Jacoby and Brown for at least the same reasons.

Claim 37 is directed to a method for use in a computer system having a plurality of host processors coupled to a storage system over a network. The method comprises a step of displaying, on a display in the computer system, a first representation of each of the plurality of host processors that is logged into the storage system over the network, wherein the first representation identifies each of the plurality of host processors that is logged into the storage system as being logged into the storage system.

As should be clear from the foregoing, none of the references, alone or in combination, discloses, teaches, or suggests a step of displaying, on a display in a computer system, a first representation of each of a plurality of host processors that is logged into a storage system over a network, wherein the first representation identifies each of the plurality of host processors that is logged into the storage system as being logged into the storage system. Thus, claim 37

patentably distinguishes over the combination of Raz, Jacoby, and Brown, and the rejection of claim 37 under 35 U.S.C. §103(a) should be withdrawn.

Claims 37-61 depend either directly or indirectly from claim 37 and patentably distinguish over the asserted combination of Raz, Jacoby, and Brown for at least the same reasons.

5. The Office Action Fails To Set Forth a Prima Facie Case of Obviousness With Respect to Claims 62-85

With respect to the rejection of claims 62-85, the Office simply asserts that these claims stand "similarly rejected" based upon the rejection of claims 1-36 set forth above. Applicants respectfully point out that each of claims 62-85 include limitations that are different than those recited in claims 1-36. As such, the Office Action fails to set forth a prima facie case of obviousness with respect to these claims.

For example, claim 62 is directed to a computer readable medium encoded with a program that, when executed on a computer system including a plurality of host processors that are coupled to a storage system over a network, performs a method. The method comprises steps of displaying a graphical representation of a portion of data that is stored on the storage system, displaying access privileges to the portion of data stored on the storage system, and modifying the access privileges to the portion of data by one of the plurality of host processors in response to a graphical selection of the graphical representation of the portion of data.

Neither Raz, Jacoby, nor Brown, nor the asserted combination thereof teaches Applicants' invention as recited in claim 62. Specifically, none of the references alone, or in combination, teaches or suggests the steps recited in claim 62 including a step of modifying access privileges to a portion of data by one of a plurality of host processors in response to a graphical selection of a graphical representation of the portion of data. Indeed, although both Jacoby and Brown disclose a graphical representation of a network topology, neither reference discloses, teaches, or suggests a step of modifying that topology in response to a graphical selection of the graphical representation.

Accordingly, because the Office Action fails to set forth a prima facie case of obviousness with respect to any of claims 62-85, the rejection of these claims is improper and should be withdrawn.

CONCLUSION

In view of the foregoing amendments and remarks, this application should now be in condition for allowance. A notice to this effect is respectfully requested. If the Examiner believes after this Amendment that the application is not in condition for allowance, the Examiner is requested to call Applicants' attorney at the number listed below to discuss any outstanding issues relating to allowability.

If this response is not considered timely filed, and if a request for an extension of time is otherwise absent, Applicants hereby request any necessary extension of time. If there is a fee occasioned by this response, including an extension fee, that is not covered by the enclosed check, please charge any deficiency to Deposit Account No. 23/2825.

Respectfully submitted,

Robert A. Skrivanek, Jr.
Registration No.: 41,316
Wolf, Greenfield & Sacks, P.C.
600 Atlantic Avenue
Boston, MA 02210-2211
Tel. No.: (617)720-3500

Attorney's Docket No.: E00295.70097.US
Dated: January 6, 2003

MARKED UP CLAIMS

The claims have been amended as shown below with deletions indicated by bracketing and additions indicated by underlining:

1. (Amended) A computer readable medium encoded with a program for execution on a computer system that includes a plurality of host processors coupled to a storage system over a network, the program, when executed on the computer system, performing a method comprising a step of:

displaying a first representation of each of the plurality of host processors that is logged into the storage system, wherein the first representation identifies each of the plurality of host processors that is logged into the storage system as being logged into the storage system.

37. (Amended) In a computer system having a plurality of host processors coupled to a storage system over a network, a method comprising a step of:

displaying, on a display in the computer system, a first representation of each of the plurality of host processors that is logged into the storage system over the network, wherein the first representation identifies each of the plurality of host processors that is logged into the storage system as being logged into the storage system.